



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/898,439	07/05/2001	Tue Nguyen	SIM077	1885

7590 12/18/2006  
Sheldon R. Meyer  
Fliesler Meyer LLP  
Four Embarcadero Center  
Fourth Floor  
San Francisco, CA 94111-4156

EXAMINER
----------

HOANG, QUOC DINH

ART UNIT	PAPER NUMBER
----------	--------------

2818

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/18/2006	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	Application No. 09/898,439	Applicant(s) NGUYEN ET AL.	
	Examiner Quoc D. Hoang	Art Unit 2818	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 04 October 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 30,35,36 and 38 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 30,35,36 and 38 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Response to Amendment*

1. Amendment filed on 10/04/2006 has been entered. In Amendment, claims 1-29, 31-34, and 37 have been cancelled. Claims 30, 35, 36 and 38 are pending in the application.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 30 and 38 are rejected under 35 U.S.C. 102(b) as being anticipated by Amagasa (U.S. Pat No. 4,750,077).

**Regarding claim 30**, Amagasa teaches an improved apparatus for semiconductor processing, the improvement comprising a helical ribbon electrode 50, wherein the helical ribbon electrode 50 comprises a compressed cylindrical helix having a plurality of flat concentric spiral coils 52 separated from each other by a sheet of dielectric material 54, each said flat concentric spiral coil 52 comprising a ribbon-like form, said ribbon-like form comprising a width and a thickness wherein the width is substantially greater than the thickness, the width lying in a plane that faces another of said plurality of flat concentric spiral coils, and the thickness corresponding to a plane that is substantially parallel to a direction of stacking of said plurality of flat concentric spiral coils (col. 3, line 10 through col. 4, line 42 and Fig. 4).

**Regarding claim 38**, Amagasa teaches an improved electrode 50 for coupling to the output of a generator (power source equipment), the improvement comprising a helical ribbon electrode further comprising:

a plurality of substantially flat, concentric, spirally-connected coils 52, said coils having a width and a thickness, the width being in a dimension facing an adjacent coil, and the thickness being perpendicular to the width, where the width is substantially greater than the thickness; and

a sheet of dielectric material 54 between adjacent coils (col. 3, line 10 through col. 4, line 42 and Fig. 4).

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 35 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ye et al (U.S. Pat No. 6,488,862 herein after "Ye") in view of Amagasa (U.S. Pat No. 4,750,077).

**Regarding claim 35**, Ye teaches an apparatus for semiconductor processing, the apparatus comprising:

a process chamber 10 (col. 8, lines 5-45 and col. 11, lines 28-47 and Fig. 1);

a solid state RF plasma generator 18 coupled to the process chamber 10 to excite a processing gas (through gas inlet 26) and generate a plasma (col. 8, lines 5-45 and col. 11, lines 28-47 and Fig. 1);

a controller coupled to the solid state RF plasma generator to pulse the solid state radio frequency plasma generator for each deposited layer (col. 11, lines 28-47 and Fig. 1). *Note that the pulse time is considered to be the controller, and*

a cylindrical helical ribbon electrode 12 coupled to an output of the solid state radio frequency plasma generator 18, the cylindrical helical ribbon electrode further comprising; a plurality of spirally-connected ribbon-shaped coils 12, and wherein a cylindrical helical ribbon electrode is placed at a distance of about 4 inches from the substrate 14 (col. 8, lines 5-45, col. 9, lines 1-5 and col. 11, lines 28-47 and Fig. 1).

Ye teaches the spirally-connected ribbon-shaped coils, but does not teach each said coil having a width and a thickness; the width substantially greater than the thickness and flat in a dimension facing another of said plurality of spirally-connected ribbon-shaped coils, and wherein a sheet of dielectric material separates adjacent spirally-connected ribbon-shaped coils.

However, Amagasa teaches a spirally-connected ribbon-shaped coils 50, each said coil 52 having a width and a thickness; the width substantially greater than the thickness and flat in a dimension facing another of said plurality of spirally-connected ribbon-shaped coils; and the thickness is substantially perpendicular to the width, and wherein a sheet of dielectric material 54 separates adjacent spirally-connected ribbon-shaped coils 50 so that, when compressed, the adjacent surfaces of the spirally-

Art Unit: 2818

connected ribbon-shaped coils do not touch (col. 3, line 10 through col. 4, line 42 and Fig. 4). Since Ye and Amagasa are all from the same field of endeavor, the purpose disclosed by Amagasa would have been recognized in the pertinent art of Ye. It would have been obvious to a person of ordinary skill in the art at the time of the invention was made to provide the dielectric material separates adjacent coils in order to reduce the size while increase the capacitance of the coils as taught by Amagasa, column 5, lines 58-61.

**Regarding claim 36,** Ye does not teach a sheet of dielectric material is greater than the width of the spirally-connected ribbon-shaped coils.

Amagasa teaches wherein the width of the sheet of dielectric material 64 is greater than the width of the spirally-connected ribbon-shaped coils 60 (col. 4, lines 30-42 and Figs 5-6). Since Ye and Amagasa are all from the same field of endeavor, the purpose disclosed by Amagasa would have been recognized in the pertinent art of Ye. It would have been obvious to a person of ordinary skill in the art at the time of the invention was made to provide dielectric material is greater than the width of the coils in order to wound around the coils with dielectric material as taught by Amagasa, column 4, lines 30-40.

### ***Response to Arguments***

6. Applicant's arguments filed 10/04/2006 have been fully considered but they are not persuasive.

In response to applicant's arguments, the recitation "semiconductor device" in claims 30 and 35 has not been given patentable weight because the recitation occurs in

the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). The applicants also submit that Amagasa does not disclose an electrode. It would have been obvious to a person of ordinary skill in the art to use a spiral conductive coils as an electrode and the coil is coupled to the RF generator to generate plasma ions.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, clearly in column 5, lines 58-61, Amagasa discloses the coils (50) having a width greater than the thickness and a sheet of dielectric material (54) separates adjacent coils in order to reduce the size while increase the capacitance of the coils.

### ***Conclusion***

**7. THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quoc Hoang whose telephone number is (571) 272-1780. The examiner can normally be reached on Monday-Friday from 8.00 AM to 5.00 PM.

If attempt to reach the examiner by telephone are unsuccessful, the examiner's supervisor, MinSun Harvey can be reached on (571) 272-1835. The fax phone numbers of the organization where this application or proceeding is assigned are (571) 273-8300 for regular communications and (571) 273-8300 for After Final communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should



Art Unit: 2818

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

Quoc Hoang  
Patent examiner/AU 2818

*Quoc Hoang*

*[Signature]*

*12/11/2006*

*Primary Examiner*